

REMARKS

Applicant appreciates the Office's consideration of amendments and comments submitted on July 11, 2005. Applicant respectfully requests reconsideration and allowance of the subject application. Claims 1-11, 13-15, 17-28 and 34-39 are pending in the application. Claims 1, 13, 22 and 34 are independent claims. Claim 1 has been amended.

The Office Action of September 28, 2005 has been carefully considered by the Applicant. Claim 1 stands rejected under 35 U.S.C. §112, second paragraph. Also, claims 1-11, 13-15, 17-28 and 34-39 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,130,911 to Parker et al. (hereinafter referred to as the Parker reference) in view of US Patent No. 6,415,396 to Singh et al. (hereinafter referred to as the Singh reference).

In overview, by the present amendment, the rejections have been traversed in view of the following remarks. The Applicant respectfully requests reconsideration and allowance of the subject application. This Amendment is believed to be fully responsive to all issues raised in the Office Action of September 28, 2005.

Claim Rejections Under 35 USC §112

Claim 1 stands rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements. In particular, the Office states the omitted structural cooperative relationships are: "updating the association in the map data structure upon execution of the executable feature" where the association is that "between the executable feature and the graphics element." This rejection is respectfully traversed.

1 Applicant has amended claim 1 to rectify a minor informality that occurred
2 when the claim was amended by way of the Applicant's prior Response.
3 Applicant respectfully submits the amended claim 1 fully complies with the
4 requirements set forth by 35 U.S.C. §112, second paragraph. Accordingly,
5 reconsideration and withdrawal of the claim rejection are respectfully requested.
6

7 **Claim Rejections Under 35 USC §103(a)**

8 Claims 1-11, 13-15, 17-28 and 34-39 stand rejected under 35 U.S.C.
9 §103(a) as being unpatentable over the Parker reference in view of the Singh
10 reference. For at least some of the reasons that follow, Applicant respectfully
11 disagrees that the subject matter of the above claims is obvious given the above
12 cited references.

13 **Review of Different Application Testing Techniques**

14 In overview, before the present claimed invention, the testing of software
15 was performed generally using one of three techniques. The three techniques
16 included manual testing, automated testing using a script, and automated
17 "monkey" testing. Manual testing (e.g., ad-hoc testing) was performed by a
18 human tester. The testers explored the program and attempted to make it fail.
19 Manual testing was very time-consuming and expensive. Automated testing using
20 a script involved having a human tester write a script to exercise a specific feature
21 of the application. Once the script was written, the script was run to automatically
22 test the application. The creation of the script was the expensive part of this
23 technique. In addition, only the features written into the script were tested.
24 Monkey testing used a monkey program to automatically exercise the application
25 under test. The coding of the monkey program was quite expensive, but once that

1 was done, running the monkey program to automatically test the application under
2 test was fairly inexpensive. The monkey program randomly selected actions or
3 graphics elements until the test was terminated by a human tester or the monkey
4 program encountered an unrecoverable system or programming error. Typically,
5 monkey testing ran several days at a time. This hindered the timeliness of product
6 development and deployment processes.

7 **Review of the Cited References**

8 The Parker reference is an example of automatic testing using a script. In
9 the summary in column 4, lines 6-10, the Parker reference states the following:

10
11 The invention has essentially three major components. The
12 first component is a test script which is written in a high level
13 programming language and contains the user events to be
14 simulated....

15 In fact, the Parker reference surmises that “the software development project of
16 the near future will consist of two interlocking development projects: the
17 development of the product software, and the development of the software (test
18 scripts) that will test the product software.” Column 26, lines 32-36. The intent
19 behind the Parker reference was to “enable cross-platform testing of individual
20 applications that can be ported to other GUIs.” Col. 28, lines 30-32. Thus, the
21 Parker reference described a way in which the script could be written so that the
22 script could be used to test the application on multiple platforms, such as
23 OPENLOOK, MOTIF, MACINTOSH, and MICROSOFT WINDOWS
24 environments. The Parker reference acknowledged that the designer of the test
25 suite must strike a balance between portability and specificity in order for a test
case to run successfully. Column 22, lines 23-25.

1 Table 2, Columns 2 and 9 of the Park reference shows several example
2 script entries that may be used during a testing process. The Table 2 shows that
3 entries must first be entered into the script before they can be used to test a GUI.
4 Parker explicitly states that the “test executive passes the GUI specific command
5 to the test driver. The test driver then performs the actual action o the GUI object
6 specified in the test script command. Column 8, lines 20-24.

7 The Singh reference, as described in the Summary, is directed at an
8 apparatus and method for generating and maintaining a regression test case set
9 directly and automatically from requirement models. The Summary further
10 defines a regression test case as a set of test cases that are used by the user to
11 verify functionality in view of modifications or additions to the system. The Singh
12 reference teaches to use a directed graph representation for automatically
13 generating an optimum number of scenarios for testing. Col. 8, lines 31-34. An
14 operator constructs the directed graph from a written body of requirements or from
15 some other requirements models or formalism. Col. 10, lines 41-44. The Singh
16 reference teaches that a user can select specific test cases in the regression test
17 case set to determine what affect, if any, the additional or new features have on the
18 remaining functionality. Col. 13, lines 7-10. The Singh reference is silent on the
19 testing of GUI applications. Rather, the Singh reference is directed at testing
20 procedural logic within a software application. In addition, the features and the
21 order for testing the features are determined at the time that the directed graph is
22 created.

23 **Traversal of Rejected Claims Based on the Cited References**

24 The present invention “provides a systematic approach to exploring
25 features of a GUI of a software application.” Page 12, lines 21-22. In general, the

1 systematic approach is determined based on “the graphics elements rendered
2 during execution of a software application being tested” as recited in independent
3 Claims 1 and recited in similar manners for the other independent Claims 13, 22,
4 and 34. Thus, the determination of what features are tested are determined
5 automatically during the testing of the target application. This is in direct contrast
6 to the teachings of the Parker reference which teaches that a script is written that
7 determines what features are tested and in what order the features are tested. This
8 is also in contrast to the teaching of the Singh reference which teaches to construct
9 a directed graph which determines what features and what order the features are
10 tested. Thus, the Examiner has not cited any reference that teaches or suggests the
11 claimed invention. In fact, even if all of these references could be combined, their
12 teachings could not possibly suggest the present invention. In addition, there is no
13 suggestion or motivation to combine these references.

14 Claim 1 further recites “storing an association between the executable
15 feature and the graphics element in a map data structure.” And this occurs once
16 information is retrieved from a “graphics element rendered during execution of
17 the software being tested.” The Parker reference does not describe such a
18 process. The testing script according to the Parker reference is not dynamic
19 during the testing process. It is produced before testing occurs; if changes are
20 required, they must be made by a human and while testing is not occurring.
21 More specifically, the associations between an executable feature and a graphics
22 element are determined before a testing process occurs. These associations are
23 accounted for in the testing script. This is explicitly shown in Table 2 of the
24 Parker reference. In distinction, the claims of the present invention recite that an
25 association is stored “during execution of the software being tested.” Thus, the

1 testing process according to the instant application has dynamic functionality.
2 The other independent claims of the instant application set forth similar subject
3 matter as that found in claim 1.

4 Thus, for at least one or more of the above reasons, the Applicant contends
5 that the Parker reference, whether considered alone or with any permissible
6 combination of prior art of record, does not teach or suggest each limitation recited
7 in independent Claims 1, 13, 22, and 34. Therefore, the Applicant respectfully
8 submits that the §103 rejections of independent Claims 1, 13, 22, and 34 is
9 improper, and respectfully requests reconsideration and withdrawal of this
10 rejection.

11 Furthermore, the dependent claims include other limitations that are not
12 taught or suggested by the prior art of record. For example, “selecting executable
13 features in a depth-first mode of operation,” “selecting executable features in a
14 breadth-first mode of operation,” and other limitations are not taught or suggested.
15 Therefore, for at least the above reasons, Applicant respectfully submits that the
16 §103 rejections of dependent Claims 2-11, 14-15, 17-21, 23-28 is improper, and
17 respectfully requests reconsideration and withdrawal of this rejection.

18 **Legal Framework**

19 In overview, as stated in MPEP § 2143, to establish a prima facie case of
20 obviousness, three basic criteria must be met. First, there must be some
21 suggestion or motivation, either in the references themselves or in the knowledge
22 generally available to one of ordinary skill in the art, to modify the reference or to
23 combine reference teachings. Second, there must be a reasonable expectation of
24 success. Finally, the prior art reference (or references when combined) must teach
25 or suggest all the claim limitations. The teaching or suggestion to make the

1 claimed combination and the reasonable expectation of success must both be
2 found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20
3 USPQ2d 1438 (Fed. Cir. 1991).

4 Further, as stated in MPEP § 2143.01, obviousness can only be established
5 by combining or modifying the teachings of the prior art to produce the claimed
6 invention where there is some teaching, suggestion, or motivation to do so found
7 either in the references themselves or in the knowledge generally available to one
8 of ordinary skill in the art. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.
9 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). The mere
10 fact that references can be combined or modified does not render the resultant
11 combination obvious unless the prior art also suggests the desirability of the
12 combination. In re Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990).

13 Therefore, "all words in a claim must be considered in judging the
14 patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 165
15 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35
16 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837
17 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

18 With this legal framework in mind and for the additional reasons explained
19 above, the Applicant respectfully submits that the current rejection under 35
20 U.S.C. §103(a) is improper and must be withdrawn.

1 **Conclusion**

2 Applicant has considered the other references cited by the Examiner in the
3 Office Action. None of these references appear to affect the patentability of
4 Applicant's claims. By the foregoing remarks, Applicant believes that pending
5 claims are allowable and the application is in condition for allowance. Therefore,
6 a Notice of Allowance is respectfully requested. Should the Examiner have any
7 further issues regarding this application, the Examiner is requested to contact the
8 undersigned attorney for the Applicant at the telephone number provided below.

9
10 Respectfully Submitted,

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